

Feb. 25,
1885.
Vol. IV. No. 10.

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The Tech.

VOL. IV.

BOSTON, FEB. 25, 1885.

No. 10.

THE TECH.

Published on alternate Wednesdays, during the school year, by the students of the Massachusetts Institute of Technology.

BOARD OF DIRECTORS, 1884-5.

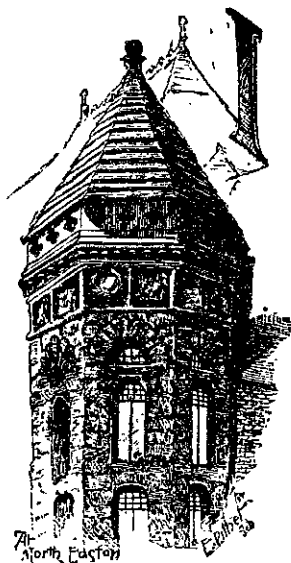
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Subscription, \$2.00 per year in advance. Single copies, 15 cents each.

ALFRED MUDGE & SON, PRINTERS, 24 FRANKLIN STREET, BOSTON.



In a few months we shall have arrived once more at the period signalized in the catalogue as "degrees conferred." Then will the regulars of '85, with the long-cherished sheepskins, the reward of four years of application, bid us good-by, and go out in search of new worlds to conquer. But what of the specials? They have journeyed along side by side, year after year, doing practically the same work, members of the same class; and what does their Alma Mater give them on leaving her walls, to show for their work? Simply an "honorable dismissal." No more, and no less, than she gives a student who enters, remains a few months, and then finally withdraws (provided he has no bad debts).

Now with all deference to the superior wisdom of the powers that be, we wish here to inquire, Is this just?

Let us look at it a moment. Of the total number of students in the School of Industrial Science, nearly *one half* are special students.

If we inquire into the reasons for these students pursuing a special course, we shall find that in very many cases it is by their own choice, the student after careful deliberation having satisfied himself that, owing to causes over which he has no control, it is the wisest course to pursue. The idea which some unthinking persons seem to entertain, that the special course is simply a "catch-all" for those unable to retain their status as "regulars," needs only to be stated to show its absurdity. True, there are some who have lost their "regular" standing by failing in some subject which, as often happens, may have no direct bearing upon their profession. But this may be through no fault of their own.

At any rate, a glance at the list of special students will be sufficient to show that it contains as *good material*, to say the least, as can be found in the Institute. And if we were to follow them out in after life, where the real test of ability and attainment comes, we shall find that the men who have come out from special courses are fully abreast of their "regular" brethren.

To quote from the recent report of President Walker: "The Faculty will not cease to encourage the coming to the Institute of certain special students, whose circumstances, or whose age at the time of entering, will not permit them to take the full regular course. Among such students have always been found some of our best scholars; and from them have come some of our most successful engineers, chemists and architects."

And yet, when these special students have done their work, they must leave *with nothing to show* as to whether their attainments here have been good, bad, or indifferent. This, we have reason to believe, will be learned with surprise by many friends of the Institute, and perhaps by many of the students themselves.

Now, should not every student, upon leaving the Institute, reasonably expect a full and explicit statement of the quality and amount of work he has done during his course? There is nothing new in this. Until within two or three years it was the custom on the part of the Institute to provide each student with some such certificate of attainment. What were the reasons for the discontinuance of the custom we do not know, but we feel justified in saying that the absence of such a certificate on the part of his instructors is a serious hardship to many a conscientious student.

To be sure no diploma nor certificate makes a student, but it is a tangible evidence to the possessor and his friends that he has fulfilled the conditions it contains, — that he has done so much work, — and as such it is a testimonial which, it seems to us, every student has a right to expect.

May we not, at an early day, hope for better things this regard?

WE notice in a late issue of our esteemed contemporary, the *Columbia Spectator*, under the heading "Correspondence," an article, well written, but, unfortunately for the value of the matter, incorrect in its deductions, because the premises are incorrect, in so far as our institution and methods of work are the subjects of criticism. We desire, if it be possible, to set the matter right. The course in mining engineering here is so framed, that students having laid the necessary groundwork which makes further study satisfactory, may devote their energies chiefly to the particular work which they, as is frequently the case, are sure of entering upon after leaving the school.

It is for this reason that the "Options" are introduced, — not understood as an arrangement for shirking work, as the word is frequently translated, but for the better laying out of future work. Mathematics are, through the first year and first half of the second year, obligatory. Then follow three choices or options, one of which *must* be taken, or a different combination

made if necessary and practicable. In this way it is possible that a man may escape mathematics, if he intends being a geologist or metallurgical chemist. Metallurgy is obligatory, the option being as to *how much more* time he wishes to spend on the subject in the mining laboratory, or in other ways as provided. As for geology, it is possible that a man *could* get through without having nominally studied mineralogy and geology, by judiciously piecing together his work. Such is, however, not the practice, as one course of study or research naturally leads to the next step in that particular direction. As a rule, young men come to this school with a purpose to fit themselves as well as they can for their life work, and they are aided as much as is possible in this attempt. As an example of the choice of studies, the writer, with most of his class, has taken mathematics through the entire four years up to the present term, when they were put aside for more metallurgical thesis work in the laboratory.

The course in mathematics comprised Algebra, Geometry (finished), Trigonometry, Analytic Geometry, the Differential and Integral Calculus, applied mechanics and the strength of materials, including actual tests upon iron, iron and steel wire rope, wooden beams, etc.

The miners have all taken Mineralogy, and Geology in its several branches, with field work and more or less numerous excursions for the greater number, during the last three years of their course.

Without exception they have all had Metallurgy, the options differing only in more time put into Metallurgy, Chemistry, or Geology.

It need only be said in regard to the margin allowed in quantitative chemical analysis, that three tenths of one per cent is the limit, while in many determinations, as in pig irons and steels, a variation of as many hundredths of one per cent would, as every one knows, condemn the analysis. By some error in printing, an editorial in a former number of THE TECH gave three per cent as the limit, which was manifestly absurd, and was of course corrected in the following number.

The grievance of which the miners of the Institute of Technology have to complain is, not of their laboratories, or the facilities afforded to best equip a mining engineer for his profession, — for we may without hesitation affirm that our laboratories are more complete in every detail than any in the States, to make no stronger comparison, — but of too much quantitative work in proportion to the time allotted. Very few would, we think, wish to abolish quantitative analysis, unless, perhaps, one “disheartened by failures of analysis in addition to his routine studies,” as our friend has so aptly put it. Space, however, forbids a discussion of anomalies, as well as of the more profitably debatable subject of a five years’ course.

Faith.

I strayed one day into the fields alone,
And past me roared the thund’ring train,
When lo! I saw a vision at the pane,
And straightway it had flown.

I roamed one day in Fancy’s field alone,
Just as the shadows deepened into night,
When in my soul there flashed a poem bright,
And then the light was gone.

One day, I know not how or when ’t will be,
In some bright hour the face I yet shall find,
And from some hidden chamber of the mind
The poem shall come back to me.

E. Pithet.

The Mechanical Engineering Laboratory.

A VISITOR to the basement of Rogers Building any Monday or Friday afternoon will find in the Mechanical Engineering Laboratory a busy set of workers; at these times the senior mechanicals are experimenting on nearly all the engines, machines and apparatus which are available to them, and the noise of machinery, gongs and escaping steam, the hurry and apparent confusion, which are perfect order and regularity to the class, may be a revelation to a person not familiar with the practical work of a scientific school.

The work in this laboratory is begun in the latter part of the third year, with tests on the

Harris-Corliss engine. This engine is used solely for experimental purposes, its work being absorbed and measured by a friction brake. Its cylinder is 8 x 24 inches, and it runs at from thirty to seventy revolutions per minute, in different series of experiments; it exhausts into a surface condenser, and the water resulting from the condensation is weighed at intervals of five minutes during the test, at which times indicator cards are taken, and observations made on the steam pressure and speed. The cards are “worked up” as the experiment proceeds, and all results entered upon a log, from which the horse-power, water per horse-power per hour, re-evaporation and other customary data, are computed. The Porter-Allen engine (10 x 20 inches, 204 revolutions), used to drive the ventilating fan in the new building, is similarly tested later in the laboratory course.

The fourth-year class is divided for regular work into groups, which rotate in office through the following experiments:—

Calorimeter. Experiments on the quality of steam, under different conditions, are conducted by means of a Barrus calorimeter, upon which some improvements have been made, tending to lessen the liability to error.

Dynamometer. The power required to drive various machines is measured by a Webber dynamometer, the cotton machinery in the laboratory being used at present for the purpose.

Testing Steam Gauges. The tests are made with an apparatus consisting of a standard square inch and gauge, hydraulic piston, etc., mounted, presented to the Institute by the Utica Steam Gauge Company.

Valve Setting, by means of indicator cards.

Coefficient of Friction of Belts, determined by the pull of a belt stretched by weights over a revolving pulley, the pressures and speeds varying.

Slip of Belts, determined by counters attached to five shafts, transmitting power in different parts of the laboratory.

Steam Pump Duty Test, upon a Blake pump, loaned by the Blake Steam Pump Company. Indicators are applied to the steam and water

cylinders, and the amount of water pumped and the distance through which it is raised determined, together with re-evaporation and other data.

In connection with the experiments mentioned, and with others under consideration, which will be prepared in due time, the testing machines of the applied mechanics' laboratory are used; these are a 50,000 lbs. Olsen machine, for small specimens of leather, iron and other materials, and in which experiments on the qualities of springs will be made; and a machine for large pieces, such as beams and floors.

The Institute has received a considerable amount of cotton machinery, in the use of which the fourth-year class will receive instruction.

In December two ten-hour tests were made on the boilers in Rogers Building, furnishing steam to the Porter-Allen engine, and their evaporative power, under the conditions existing at the time, calculated. Later in the present term another test will be made, which will include calorimetric work, and there will be a test of the boilers and forty horse-power Brown engine at the shops.

The variety of subjects investigated in the mechanical engineering laboratory, and the fact that the greater part of them are not undertaken until the fourth year, show the importance of this work and the closeness of connection between it and the studies of the department. It is difficult for any one to whom experience of this kind is an every-day affair, to realize the advantage derived from it, in carefulness of observation and accuracy of methods, as well as in practical scientific knowledge.

In order that the social hop to be given by the Glee Club soon after Easter may be a greater success, socially and financially, it has been deemed advisable to enlarge the list of associate members. As one concert has already been given, new members will be admitted for the remainder of the year for \$1.50. Tickets can be obtained of Mr. T. A. Fox, architect, secretary of the club.

A Triplet of Letters.

No. 407 — TH AVENUE, NEW YORK,
Feb. 16, 1885.

TO THE EDITOR OF THE TECH:

Dear Sir,—My sister rashly sent me upstairs the other day to look in her bureau drawer for a package of bills. In my search I opened by mistake a bundle of letters, and, my attention being attracted by an allusion in one to your institution (from which I graduated two years ago), I *absent-mindedly* read it and some others, and finally took the liberty of purloining the enclosed three, and sending them to you for the benefit of your readers. I expect my sister will be "madder than mad" if she ever finds it out, but I was once on THE TECH board myself, and so feel for you, and only stipulate that all last names shall be changed or left blank.

Yours fraternally,

'83.

BOSTON, Jan. 21, 1884.

DEAR CLARA:

I suppose you are wondering *why* I have not written to you before, as I promised; but, you see, it has taken me some time to arrange my room, take out and hang up all my dresses to my satisfaction, and get generally settled; and then Cousin Lottie and her husband seemed to think at first that if they didn't make *special* efforts to amuse me, I shouldn't have a bit of a good time, so they took me to *all sorts* of things, operas, concerts, receptions, sociables, and so on, in quick succession (as they say in novels), and it was more than a week before I managed to make them understand that that was *just* what I had come to Boston to escape, because I know so few people here, and wanted to have *one* real nice lazy time without having to wait until Lent for it. I think they were quite glad on their own account to find out the true state of the case, because they *are* about the steadiest young married couple I ever saw, and—at least so I imagine—had not been into society much lately, until my unexpected acceptance of Lottie's kind invitation called upon them, as they thought, for a new departure. Well, *now* it is all understood, and unless some of the gentlemen to whom I have been introduced come calling (and I hardly think any will, for all the people in good society here seem to me to be an awfully unsocial set), I shall be free to settle down to my projected existence of practising, reading, and fancy work. By the way, it was *so* nice of you to send me that pretty pattern I asked you for, when I had neglected you so shamefully; I am going to begin on it right away.

I *must* tell you about an aggravating little incident that happened the other day. You know my room is at the back of the house, and there is nothing but the lengths of two back yards, with the width of the enclosed alley way, between my windows and those in the back of the opposite block. Well, I have sometimes seen a rather nice-looking young man seated in the window directly opposite mine, and generally either reading or

BOSTON, Feb. 19, 1884.

writing at a little table. Now you need n't begin to smile in that sarcastic little way of yours : I assure you I never more than half noticed him until a day or two ago, when I observed that he had a small telescope mounted in the window, through which he was looking at intervals, and writing down the results of his observations in a small book. I had for some reason always supposed he was a student, and so, taking it for granted that he must now be studying astronomy, paid but little attention to his operations until yesterday, when, happening to glance across, it occurred to me that his telescope seemed pointed much lower than usual. Wondering whether it was the effect of a shadow or what, I got out my opera glass and looked across with a kind of indifferent curiosity. Imagine my horror at discovering behind his instrument that miserable wretch deliberately staring through it at *me*, and I could see on each side of the glass a corner of his great ugly mouth expanded in an odious grin, at having caught me in the same act he himself was perpetrating. The worst of it was *he* could not know that I had n't the slightest idea of seeing *him*, but would attribute *my* action to the same vulgar inquisitiveness which prompted his own. It made me *so* angry. You can believe I pulled down the curtain with a jerk that almost broke the spring. The drawn shade made the room so dark, however, that after trying reading and fancy work awhile, and finding them both too trying to the eyes, I made a pin-hole in the curtain, and looked through it to see if he was still watching. No, the man had apparently enough politeness left to take away that abominable telescope, and was busy doing something on a large square of brown paper, which he was holding near the window so as to get the light. Of course that brought the side he was not working on towards me, and I could just make out at the top the words, in big letters, "MASS MEETING!" and at the bottom "ALL COME!" There were more words which I could not distinguish, even if I had had time enough, for just then he turned the paper around, and began pinning it up on the window-frame, evidently for me to read when I should have come back to *my* window. By raising the curtain a couple of inches, and using my glass again, I could discern a representation of some one (probably himself) kneeling with clasped hands in a supplicating attitude, with mammoth tears on his cheeks, and underneath simply, "*I cry for pardon!*" You know it is extremely impolite to refuse to accept an apology, and besides I was afraid some one else in the house might see the placard; so I put up the curtain and motioned to him to take it down at once, which he did with such a penitent expression that I think I shall have to forgive him, provided, of course, he behaves himself hereafter.

Now don't forget to write soon and tell me everything that is being done by our set in New York. Give my regards to any one who inquires after me; but you need not tell them whither I have vanished, because I have enough correspondents on hand at present, and I think with mother that I really had too much excitement last summer and the first part of this winter, so I am now going to settle down and recruit in good earnest. My sole amusement will be to inflict on you frequent long, wearisome letters like this, to retaliate for the way you treated me last summer when you knew I never had a moment to answer.

Yours, in a state of blissful repose,

NETTIE E. —.

DEAR CLARA :

I do not think I have mentioned my *vis-à-vis* to you again for two or three letters. He has acted quite gentlemanly lately, and I have not seen anything more of that horrid spyglass, although he *will* persist in talking across on his fingers, when I happen to be looking. I declined to take any notice of him at first, but one day, when turning over the encyclopædia in search of something, I came upon the deaf and dumb alphabet all drawn out in full, and I *could n't* resist the temptation to take it up to my room, and see if I could make out what he *was* saying. Sure enough, the next time he began signalling, by constantly looking at the book I could understand a little, and I think he saw what I was doing, for he went quite slowly and carefully, so that I now know about all he says. You know it's getting awfully dull here with nothing going on, and it's really amusing to watch him, and then he looks *so* happy when he gets a smile occasionally, that I have n't the heart to ignore him entirely as he deserves, but I never answer his questions or anything, which I think vexes him sometimes, and serves him right, too : what business has *he* to bother me with his absurd gesticulations?

But oh! the awfulest thing happened last week. I thought at first I would n't tell you, and now don't *you* tell a living soul. I went to the Boston Art Club, Friday evening, with Mr. Cameron. It was a real cold, slippery, disagreeable night, but their exhibition of paintings closed the next day. I had not been to it before, and wanted so much to see it, because I have heard the folks at home make so much fun of the club. Well, just within the entrance Mr. Cameron paused, and began to fumble for his ticket. I reached up (you go up a few steps to the outer door), took hold of the door-knob and threw my whole weight on it, trying to pull open the door, which is one of those horrid old affairs that are shut by a great heavy spring. There must have been some snow that had got caked on my heel, for my foot slid out, my hand slipped off the knob, and I fell back plump into some one's arms. Supposing it to be Mr. Cameron of course, I said, "It's lucky you were on hand," when, turning half around, imagine my horror to find I had nearly prostrated *that young man*, who had just come up the steps. If he had said a *word*, I should have *hated* him forever; but fortunately he only bowed and smiled, held open the door for Mr. Cameron and myself to enter, and followed us in. I did n't feel easy until I saw him seated, and apparently making a rough sketch of some picture, and I got away as soon as I could; so I really can't tell you much about the pictures, though I'm sure some of them were perfectly lovely.

You must excuse me if this letter is awfully stupid and incoherent, because I'm as sleepy as I can be; I was awakened twice last night, and could n't get to sleep again for some time. First, at about twelve I should think, I was startled out of a horrible dream about everything, by a terrific howling. When I got fairly awake, it seemed to be a crowd of boys yelling with all their lungs something like a repetition of the word "mighty" split up into three syllables, with a lot of sounds like "rah, rah," in between, and winding up with a tremendous "eighty-four!" It sounded as if they were just at the corner, — you know our house is only a few doors from the main street, — and they went on up the avenue singing some familiar old song, the name of which I can't remember just now. As I was listening at the

window, I noticed for the first time that my neighbor opposite had his room lighted up, and was studying away for dear life with a towel tied around his head, and something that looked *very* much like the stump of a cigarette in his mouth. How hard he *does* have to work! I rarely see him in his room except in the morning and after five in the afternoon, and when there he is almost *always* studying. I wonder where he goes day-times.

It did n't seem to me I had been asleep hardly *any* time at all, when I was again aroused by an unearthly squall beneath my window. Clara, New York cats are pretty vocal sometimes, as you and I know well, but for unremitting industry, soaring ambition, and general "culture," the Boston pussy "takes the bouquet." While I was questioning how far I could throw water with the soap-tray, I was startled by a terrific crash below, accompanied by an instant cessation of the serenade. A moment after I heard a window shut across the way. I think from the sound it was *his*. This morning I went down into the yard, to find out what *could* have made such a noise. There was nothing there but some pieces of glass pickle-jar, with the labels and some writing, mostly torn off; so I didn't get the clew to his name I thought I possibly might.

Well, by the time you have reached this point no doubt you are wishing that I *would* write shorter letters, and put *something* of consequence in them; but, you see, when time hangs heavy on one's hands, letter-writing is n't such a bother as it used to be. However, I see *one* ray of hope for you. A Mr. Hadley, whom I met that first week I was here, has called several times lately, and taken me to the Symphony Concerts, and other nice entertainments. He is a very pleasant escort, on the whole, although outrageously dignified, and a trifle too learned in his conversation, both of which peculiarities I attribute to his being a senior in what he proudly terms "the first scientific college in America," *i. e.*, the Massachusetts Institute of Technology, which, he tells me, is located somewhere around here on the Back Bay. What he informs me of the way they have to study does n't sound particularly attractive, but some hints regarding parties given by the students do. One of these, I mean the parties, is an annual affair which he seems to think remarkably "swell." He says it is called the Senior Ball, because all but the Seniors go to it, but that he knows of at least *two* Seniors who will attend it this year, one being himself, and the other a particular friend of his. The party comes off in a few weeks from now, and he wants me to go with him, so I suppose I shall have to write home for my ball-dress. I expect mother *will* look astonished, after all my good resolutions in favor of rest and retirement; but I have n't danced for *more than a month*, and one can't make a hermit of one's self forever, which she ought to know as well as

Your friend,

NETTIE.

BOSTON, May 8, 1884.

MY DEAR CLARA:

Your last letter is almost pathetic in its anxious querying "why, for the past two months, I have *continually* disregarded all inquiries relating in the slightest degree to the doings of my neighbor across the way." Your curiosity, my dear, is as laudable as it is unexpected, and I shall now proceed to gratify it as far as it ever will be, and as fully as a very interesting train of circumstances lately occurring will permit. In my last letter I gave you some account of a very pleasant time

which I had at the Senior Ball, but omitted certain details, the lack of which was the probable cause why my letter seemed to you "dry and uninteresting." These details I will now give. Mr. Hadley had left me in the ladies' dressing-room, where I was adjusting my hair before the mirror, when, looking in the glass, I saw over my shoulder in the next room a face I knew at once, though I had oftener seen it *through two* panes of glass than *reflected in one*. My hand shook so that I was afraid I should drive the hairpin I was holding into my ear, and I hardly noticed Mr. Hadley when he came up and said, "I want to present to you Fred L—, a classmate and particular friend of mine." I murmured, "Certainly," in an abstracted kind of way, when what *was* my consternation to see in the glass Mr. Hadley go up and shake hands with my window friend, who, after a moment's conversation, disengaged himself from a lady with whom he was speaking, and, taking Mr. H.'s arm, was conducted by him straight toward me. I saw him start slightly and look queer, as I turned around, with my face feeling as if that mirror had been the hottest kind of open fireplace. Thank goodness he made no other sign of recognition, but gave me a perfectly elegant bow, muttering a few commonplaces, and then, the grand march striking up, excused himself, and hurried away. "Who did you say he was?" I asked Mr. Hadley, with as much calmness as I could muster. "Why, Fred L—, my best friend and intimate," replied my escort; "he is an architect, and would be a jolly good fellow if only he was n't so much of a dig." I said no more, but was not at all sorry when Mr. L— hurried up just after I received my order, and asked "if he might n't have *two* dances on the strength of his intimacy with Mr. Hadley." He took a waltz and a York, and after he had left I saw he had jotted down his initial for one of the extras, too; but as most of the gentlemen present were strangers to me, and so he disappointed no one else, I concluded to let it stand.

How I *did* enjoy those three dances! I had not been to an evening party for ever so long, as you know, and of course that had something to do with it; but do you know, dearest Clara, how seldom nowadays one sees a whole hall full of dancers, rising and falling together as one, evenly and gracefully in perfect time to the music? Even at *this* party—where I saw the most elegant dancing I ever witnessed outside of New York—there were many gentlemen who seemed to consider the chief end of life to be to get from one end of the hall to the other in the least possible time, or with the fewest possible steps, and others who devoted their energies to seeing how many times they could jump up and down or whirl around in a minute. Mr. L—, however, had found in dancing the true "poetry of motion." He floated me around the hall with scarcely any perceptible effort, and in such perfect unison with the spirit of the music that the orchestra could have timed themselves by him to advantage. Then, during the intermission, he somehow got next to me at table; and, although of course we were both rather embarrassed at first, he proved a thoroughly entertaining conversationalist, with quite an original vein of humor, not a bit sarcastic or cutting, like some people we know, but really sympathetic and genial. Yes, he certainly was awfully nice, and I don't remember ever enjoying an evening so much.

Well, he came with Mr. Hadley, when the latter made his party call four days afterwards. And since then he has been around to see me—well, a number of times, for, you see, after the ball, I used to talk the deaf-and-dumb alphabet across to

him, and very often he would n't be able to make out what I meant, and would have to come over and find out, — you see it was *such* a short way, — and then he would stay until he happened to look at the clock, when he would jump up and growl out something about "that confounded thesis," and begin to look for his hat. The best thing is, I've found out he is a New-Yorker, and knows some of the people I know; and the only reason I have n't met him before in society there, is that for the last four years he has been so busy he has hardly had time to go out at all.

I could say lots more that you would give that opal brooch of yours to hear, but I shall only tell you in *strict confidence* what happened last night, and you must n't *breathe* a word of it to *any living soul*. You see Mr. Hadley told me that the architects were great fellows for drawing and sketching, and "all that sort of thing, you know;" so I told Mr. L—— that I was awfully fond of sketches, and he ought to bring some over and show me, since I had played for him so often. He looked at me with an odd expression, but last night he did bring over the *cutest* little sketch-book, and showed it to me. After looking at a number of rough sketches of some of his professors, which he told me were hastily drawn during lectures, I came upon several sketches of my window, with your humble friend more or less dimly visible inside. I felt that he was watching me, so hurriedly turned them over without comment, when I came upon another quite accurate sketch of myself in full out-door dress. "How *did* you draw this?" said I, "from memory?" "No," he replied, "most of it at the Art Club." I hastily turned over two or three leaves together, only to be confronted by another representation of myself in ordinary morning wrapper, but in the very act of putting up my back hair, which was hanging over my shoulders. "How *could* you have seen me like this?" I cried, completely taken by surprise. "Through a telescope," he said, in a tone so low as almost to startle me. "And don't you think," I replied indignantly, closing the sketch-book and handing it back to him, "that it was perfectly abominable of you to steal my portrait in that way, and even use a telescope to assist you, as if I were nothing but a bit of scenery?" "I do," he answered, "but don't you think, Nettie dearest" — he had somehow grasped both my hands along with the sketch-book, and was holding them tight — "don't you think that when a man goes to see a gallery of pictures, and not only *sees* but *hears* the most beautiful picture of them all, don't you think that ever so poor a copy of that picture would always be to him a treasured memento of the sweetest moment of his life? And when a poor devil of a student has been grinding away for nearly four years in a strange city, where he hardly has speaking acquaintance with a single girl, and has been drawing columns and capitals and cornices without number, don't you think that when he sees in a window across the way a lovely face that somehow reminds him of home, he finds in that window a study more attractive than in the most classic architecture that ever existed, and don't you think it only natural for him to wish, as I am wishing now, that the thought of home would *always* remind him of that dear face? Nettie love, what *do* you think?"

I've no idea what I said — I think, somehow, it must have satisfied him — but, oh, what *will* mamma say?

Your bewildered

NETTIE.

One Case.

Each fresh snowflake which softly falls,
And helps to weave earth's mantle white;
The blithesome sounds and merry calls
From gay young hearts, this wintry night;

Each joyous tinkle of the bells
Which emblemize a time of snow;
Each cheery word, which plainly tells
Of rare good times, and not of woe;

Each slamming of the outside door,
And footfall on the steps beneath;
The joy which speaks of mental lore
Far greater than professors teach;

Each happy sound, which upward borne
Finds me alone in my retreat;
Each signal of the big tin horn, —
But chains me firmer to my seat.

And why not join the merry throng,
Which gladly fills the open sleigh,
And go below, midst mirth and song?
Are these the thoughts you wish to say?

Oh! it were vain to try to tell,
With paltry words, what keeps me here;
The sleigh-bells seem to ring my knell,
The stars each weep a silent tear.

I slave as many others must;
A cheerless cold creeps through the room;
The fire crumbles into dust,
And with its fall completes the gloom.

What solemn sound comes o'er the snow?
A single stroke from the old church bell.
My lamp flickers and then burns low;
The embers smoulder where they fell.

A double stroke comes, ghastly low,
And yet to me it is not late;
For, if the reason you must know,
I'm working on the Fourteenth Plate!

A. W. J., '88.

Fast Ocean Steamships.

ABOUT a year ago an article on the speed of ocean steamships was printed in THE TECH, but since that time such remarkable developments in speed have been made that a few supplementary words may be interesting. In the preceding article, the gradual development in the size and speed of steamships was traced up to the then astonishing performances of the

Alaska, which at that time held the title of "Greyhound of the Ocean," the Oregon being in process of construction. This latter vessel was being built for the Guion Company by the same builders who had turned out the Arizona and Alaska, each of which in their day held the record for the fastest passage, and, being provided with engines of enormous power, was expected to lower considerably the time of passage between New York and Queenstown. The facts did not belie the expectations.

Last summer — her first season — she repeatedly beat the record, and reduced it to 6 days, 10 hours, 30 minutes, then to 6 days, 9 hours, 25 minutes, and finally, in December, to 6 days, 6 hours, 52 minutes. Whether these times will be beaten or not remains yet to be seen.

The new steamer America, of the National Line, is the chief, if not the only, rival of the Oregon. Her maiden voyage was also made last summer, and on that occasion she achieved the honor of having made the fastest first passage, 6 days, 15 hours, 41 minutes. As the engines are new, and not always in good working order, the first voyage of a steamer is apt to be comparatively slow. Later on in the season the America reduced her time to 6 days, 14 hours, 18 minutes, which was then only about four hours behind the Oregon's. Many were the exciting races between these vessels, both being driven to the utmost. As the America is laid up this winter, and is doubtless having improvements made upon her engines, more races may be expected next summer.

It is a question as to whether the speed of ocean steamships can be further increased. The present high rate is attained by driving the ships by engines of enormous power, and to gain a small increase in speed an enormous increase in the amount of fuel consumed is required, so that the stowage room for the coal becomes a most serious difficulty.

And, withal, everything depends upon the weather. The fact of the Oregon having made her fastest passage in the usually stormy month of December is owing to her having had favorable winds and no unusually rough seas.

The following figures in regard to a few steamships may be interesting. The Alaska is of 6,932 tons' gross tonnage; the indicated horse-power of her engines is 11,000; she consumes 253 tons of coal per day, or 1,756 between New York and Queenstown, in making her fastest passage of 6 days, 18 hours, 30 minutes. The Oregon measures 7,375 tons, 11,500 horse-power, and consumes 337 tons of coal per day, or 2,155 between New York and Queenstown, to make a passage of 6 days, 6 hours, 52 minutes. The America is of 5,528 tons, 7,500 horse-power, and burns 182 tons of coal per day, or 1,199 between New York and Queenstown.

The largest steamship afloat, exclusive of the Great Eastern, is the City of Rome, which was built for the Inman Line, but now sails under the Anchor Line flag. She is 560 feet long, 52.3 feet wide, and 37 feet deep, measuring 8,144 tons.

What a comparison between these enormous vessels and the little Savannah, a vessel of three hundred tons, which steamed from Savannah to Liverpool, in 1819, in twenty-two days!

A. R.

Theses.

In case some of '85 have not yet decided upon a subject for their final school composition, the following subjects are offered as likely to open interesting lines of investigation:

1. Design for two Passenger Elevators for the Buildings of the Massachusetts Institute of Technology.
2. An investigation of the Theoretical and Practical Efficiency of the System of Fire Apparatus in Rogers Building.
3. "The Infinitesimal in Contradistinction to the Limited; or, a Study of the Attributes of Time and Space considered as *a priori* Self-existent Entities."
4. A dissertation on the permanent set of water under tension, compression and torsion.
5. A mathematical discussion of the curve called "rolerink spread-eagle," with appendix on the Theory of Bruises and Method of Least Swears.

Noticeable Articles.

The *Quarterly Review* for January contains a paper on the London Livery Companies, wealthy corporations, survivors of the Trade-Guilds which played such a part in the history of commerce and the mechanic arts in the Middle Ages. These London companies play an important part in the government of the great city to-day, and their doings, and the management of their vast revenues, have recently been made the subject of a Parliamentary inquiry. There is an interesting and learned paper on the whole subject of mediæval guilds in the new edition of the *Encyclopædia Britannica* (now in our reading-room), by Miss Lucy Toulmin Smith, and the ordinances of more than two hundred of them have been printed in a volume by the Early English Text Society. "Of late years the companies have taken up with great spirit and success the subject of technical education. The 'City and Guilds of London Institute for the advancement of Technical Education' explains itself in its unwieldy title. The magnificent building opened at South Kensington, during last summer, by the Prince of Wales, is its headquarters."

The *Quarterly* also contains a paper on Mr. Froude's "Carlyle," one more on the ever-interesting subject of Dr. Johnson and his times, and the usual Tory review of current English politics.

The *Westminster* for January contains a paper on overpressure in elementary schools, a subject just now attracting much attention in England. Lovers of out-of-the-way subjects may, perhaps, be interested in an article on the Jewish Talmud, with which might profitably be read another famous essay on the same subject in the *Quarterly* for October, 1877, by that very learned Jew, formerly connected with the great library of the British Museum, Emmanuel Deutsch, and now reprinted in his essays. There is also a paper on English character and manners, as portrayed in the works of that very pleasant and very English, though not very great, novelist, Anthony Trollope; and the Review of Current Literature in the *Westminster* is always instructive.

Macmillan's pretty and cheap *English Illustrated Magazine*, for February, contains the second of a series of illustrated papers on Shakespeare's country, and another on Naworth Castle, that great border keep in Cumberland, the home of the Dacres and the Howards, and of Sir Walter Scott's "Belted Will," the noble

"Howard, than whom knight
Was never dubb'd more bold in fight;
Nor, when from war and armor free,
More famed for stately courtesy."

The *Edinburgh* for January contains a paper which will be interesting to students of English poetry, on Spenser, as a philosophic poet. Students of natural

history will be interested in a paper on the migrations of birds; and there is a curious revelation of the secrets of that pandemonium of rogues and rascals, the Second French Empire, which was overwhelmed in deserved destruction at Sedan, in an article on its recently published secret papers.

W. P. A.

Annual Summary of Engineering and Industrial Progress: *Journal of the Franklin Institute*, February, 1885. This is a report of the Secretary of the Franklin Institute, upon the progress made, during the past year, in various branches of engineering.

The *Century* for March is essentially a war number, five articles being devoted to this subject, hence the reading matter is not so varied as usual. The frontispiece is a portrait of Daniel Webster, and there is an article entitled "Reminiscences of Daniel Webster," by Stephen M. Allen. Mr. Stedman contributes one of his graceful poems, which is a feature of the number. The *Bric-à-brac* is as entertaining as usual, and includes some verses by Mr. Frank Dempster Sherman, who, by the way, is a member of the Sophomore class at Harvard, and a newly elected editor of the *Advocate*.

With the March number *Outing* closes its fifth volume. With the next volume the magazine is to be greatly enlarged, and improved in many features. The current number is filled with entertaining and valuable matter, and its illustrations are among the best ever published. Julian Hawthorne is to begin a novelette in the April number, and among the other contributors is mentioned Mr. E. L. Richards, Jr., captain of the Yale foot-ball eleven.

The College World.

HARVARD. — Mr. S. E. Winslow, '85, has been elected permanent captain of the University nine, in place of Mr. Phillips, resigned. — The '87 class crew is heavily in debt, and unless \$200 is paid before the first of March, and \$600 before the first of April, the crew will disband. — Harvard's yearly income is nearly \$1,500,000. — The plan of arbitration between the Faculty and students, which has already been so successfully tried at some colleges, is about to be inaugurated at Harvard, and members of the conference committee are now being chosen by the students. — The *Lampoon* is financially embarrassed. — The treasurer of Harvard University reports that the total income last year was \$680,850. The total gifts for the year were

\$258,438, making the receipts \$1,420,339. The total value of productive property is \$4,803,938.

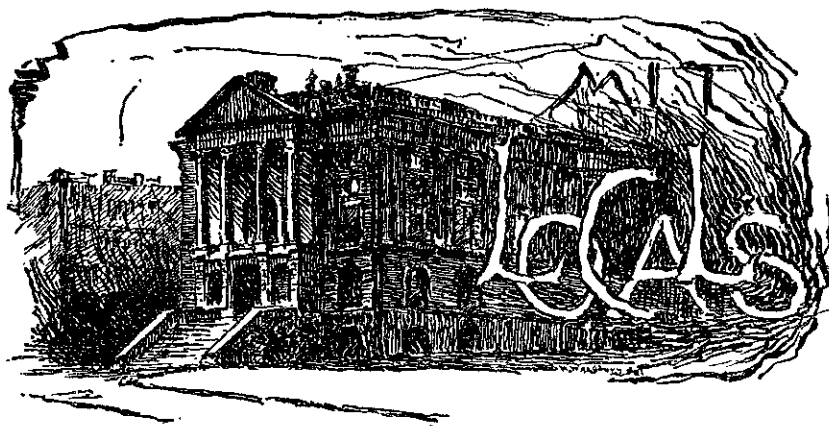
YALE. — About twenty-five men are training for positions on the University nine. — A co-operative society has been formed. — Mr. W. H. Bishop, the novelist, who is talked of for the professorship of English literature in Yale, was class poet, and a Delta Kappa Epsilon man while a student there.

CORNELL. — Cornell promises to regain her old place on the water this year, and new glory on the diamond. — *Cornell Era*. — The Glee Club has disorganized, in consequence of the poor support given it.

ELSEWHERE. — At the convention of the Intercollegiate Foot-Ball Association, held recently in New York, Wesleyan and the University of Pennsylvania were admitted to membership. Several amendments were made in the rules. — In order to check the growing intemperance among the students, the Faculty of Lafayette College have commenced proceedings against several liquor dealers on the charge of selling to minors. — The department of political and physical science at Johns Hopkins University has an unusually large number of students this year. — The students of the Rensselaer Polytechnic Institute have established a monthly magazine, *The Polytechnic*. — The new literary monthly established at Williams will begin publication in April. The board of editors will consist of six men chosen annually from the Senior class.

The spring meeting of the Athletic Club will be held on Saturday, March 7. The events will be as follows: Feather-weight and middle-weight sparring, running high jump, parallel bars, open to Institute students only, tug-of-war (600 pounds), light-weight sparring, running high kick, running high jump, standing high jump, fence vault (handicap), putting shot, and pole vault, open to all amateurs.

For the convenience of students in the new building, THE TECH will hereafter be on delivery in Room 23 of the new building, on the date of each publication, from 2 to 2½ P. M.



Regular exercises of the school were suspended last Monday.

The Juniors hold their class dinner at the Vendôme, Friday evening, March 13.

The architects are arranging for a department dinner, to be held soon after the close of Lent.

Just about this time it is very dangerous to say "thesis" to a Senior. He might burst.

A party of fourth-year mechanicals attended at the performance of "Iolanthe" at the Museum, Saturday evening.

The Seniors have been sitting for their photographs. The photographer complains that they look too serious and careworn.

Prof. Richards was in New York three days last week, attending the meeting of the American Institute of Mining Engineers.

Our physics professor has hit on a new and scientific way of calling a pupil a nobody. He describes him as "an aperture of definite size."

By vote of the Faculty, the conditioned examinations of the Senior class must be held before March 1. The civils call them "continued" examinations.

A pamphlet of notes on hydraulic experiments, revised and enlarged from a papyrographed edition, has been prepared, and is for sale to Senior mechanicals.

IN THE HISTORY CLASS. *Instructor*. — "I am going to try a new plan this term. You will answer the questions I put on the board right out of your book. Oh, you need n't write, it won't always be as easy as you think." *Subdued voice on back seat*. — "That's what we thought last term."

The lectures on "Decoration" have been commenced before the architects. The lecturer this year is Mr. C. H. Walker.

The last gymnasium party was such a success that some of the dancers are now hoping that the managers will soon be induced to give another.

The Glee Club and orchestra are rehearsing on the programme for the next concert, which will take place in April. The social hop will be given soon after Easter.

Some of the Sophomores are still troubled about the mysterious characters which appeared on their "blue books." We may say that the "r e" probably means *real entertaining*.

A Junior, whose report of the semi-annuals contained "passed low in German," explained to his parents that both high and low German are taught here, and he took the latter.

Observations on the temperature of the architectural drawing room were made last week, with the object of ascertaining whether the present heating apparatus is sufficient.

Now is the time when the Sophomore mineralogist paralyzes his uninitiated fellow by careless allusions to the beauties of tetragonal trisoctahedrons and other holohedral forms.

We suppose the "letter rack" in the architectural library was intended to move some public-spirited visitor to take pity on us, and do something to relieve our poverty. It will doubtless prove a success.

The committee chosen for the Senior class supper are Messrs. A. R. McKim, H. G. Pratt, C. R. Richards, C. S. Robinson, and S. Williams. The supper will take place at Young's Hotel, on Thursday evening, March 5.

The fourth-year Civils visited the works of the Boston Bridge Company, in company with Prof. Swain, on Tuesday, February 17. The process and methods of construction were followed through the various stages, each being fully explained through the kindness of an employé. A visit to the Norway Iron Works is contemplated in the near future.

Subscribers wishing to have their TECHS bound, can have them bound with or without covers or advertisements, at our rates, \$1.00 and \$1.25, according to style, by applying to the directors. Single back numbers can be had at the usual prices.

The problem in the advanced course of design of the architectural department is an Architectural School, supposed to be erected on the lot occupied by the new building, and to contain every feature desirable in a school of that character.

'87.

The first annual dinner of the class of '87 took place at the Parker House, on Friday the 20th inst. More than sixty members of the class were present, who, there being no business to transact, were ushered into the dining-hall at about nine o'clock. The meal gave general satisfaction, and the tasty menus contained the toasts in full, and enclosed a slip bearing the words of Mr. Spaulding's lively song, "Climbin' up the Institute Stairs," which was afterwards sung by him, all present joining in the chorus. Mr. Todd, in the capacity of toast-master, proposed various sentiments, which were responded to as follows: "Our Alma Mater," Mr. F. S. Shepard; "President Walker," B. C. Lane; "The Ladies," C. D. Underhill; "Athletics," S. Sturges; "The Faculty," T. A. Fox; "Football," P. R. Fletcher; "The Baby," C. E. Pratt; "The Semis," A. C. Corns; "THE TECH," H. C. Spaulding; "Rum," F. G. Burgess; "Boston," A. L. Cushing; "'87," E. A. Haskell. A few additional toasts were also drunk, like the others, in lemonade. Mr. Fox offered a very neat and amusing poem, in lieu of his toast. The wooden spoon for the champion gastronomer was awarded to Mr. Kirkham; but the efforts of every one present in that direction were deemed worthy of a second prize, in the shape of a miniature statuette. The supper was followed by singing, and closed with recitations from a number of gentlemen.

The supper committee consisted of Messrs. Haskell, Draper, Kirkham and Spaulding, to whom are due the credit of its success.



AN OPEN QUESTION

9:05



A SILENT MAJORITY

9:10

The elegant, titled Sir Thomas Haut Ton
Fell in love with the only fair daughter
Of an oleomargarine maker, and won
Her affections by swearing his honor upon,
That he never would have any but her.

Alas! he repented the pun at his ease;

They were wed, and, as she had the dollars,
He must smile when addressed as "My Lord," or
"Your Grease";

When a daughter came, even, the joke didn't cease,
But they marked Margarine on her collars.

Harper's Bazar.

Stern Parent. — "Another bad report, my son!" "Yes, father; I think you had best talk to the Prof., or he will keep on doing it."

AT THE SYMPHONY.

The orchestra playing at high speed. Non-musical auditor. — "What does this *forte* mean?"

Pseudo-musical auditor. — "Why, forty measures to the minute, of course."

"Well, how were the ladies dressed?" was asked at one of the clubs, of a member who had just come in from a very fashionable dinner-party. "My dear fellow," he replied, "I really don't know. The fact is, I did n't think of looking under the table." — *Ex.*

At the mouth of a Cornish mine is this advice: "Do not fall down this shaft, as there are men at work at the bottom of it. — *Ex.*"

Important Passenger. — "Say, pilot, what's the boat stopped for?"

Pilot. — "Too much fog."

I. P. — "But I can see blue sky overhead."

Pilot. — "Wal, 'til the biler busts, we ain't a-goin' that way." — *Life.*

Priest. — "Pat, I believe I saw you asleep in church last Sunday." *Pat.* — "No, indade, your Riv'rance did n't. You might 'a' seen me with me oies shut, but divil a bit o' sleep could I get anyhow, wid your screechin' an' your thumpin' of the poor cushions — long life to ye!" — *London Fudy.*

"Don't my son owe you a little bar bill?" asked Col. Yerger, as he emptied his glass, turning to the Austin Avenue saloon keeper, who was delighted at the prospect of the old man settling up his son's bill. "Yes, he owes me \$25. Shall I receipt the bill?" said the anxious saloon keeper. "Well, no; but give me a dozen cigars, and add them to my son's bill." — *Texas Siftings.*

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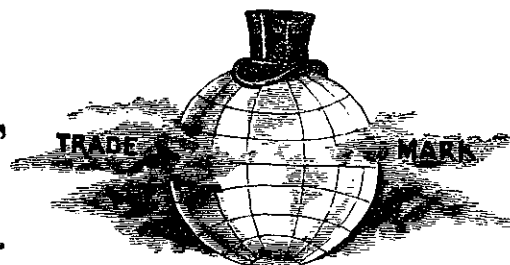
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Senior Ball.

The committee is as follows:
Jas. C. Duff, '86, chairman; H. C. Spaulding, '87, secretary and treasurer; D. P. Bartlett, C. Wood, '86; A. L. Cushing, J. L. Shortall, '87; Geo. C. Dempsey, Richard Devens, W. L. Dearborn, '88.

The ball will take place at Odd Fellows' Hall, Friday evening, April 10. Tickets, \$2.00, of the committee.

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DURING the present week can be witnessed the first presentation in this city of "Apajune." It is played at the Bijou Theatre, by the same company which has lately presented it at the New York Casino. The plot affords a fine opportunity for stage effects.

"FRANCESCA DA RIMINI" is being played at the Boston Theatre this week. It is the beginning of Mr. Lawrence Barrett's regular engagement. This is considered the piece in which he best displays his powers as an actor. Miss Marie Wainwright plays title rôle. New scenery is promised.

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Besides the above distinctly professional courses, the Institute offers scientific courses of a less technical character, designed to give students a preparation for business callings. A four years' course in biology, chemistry, and physics has been established, as preparatory to the professional study of medicine.

Modern languages are taught so far as is needed for the ready and accurate reading of scientific works and periodicals, and may be further pursued as a means of general training.

The constitutional and political history of England and the United States, political economy, and international law are taught, in a measure, to the students of all regular courses.

Applicants for admission to the Institute are examined in English grammar, geography, French, arithmetic, algebra, and geometry. A fuller statement of the requirements for admission will be found in the catalogue, which will be sent without charge on application.

A clear admission paper from any college of recognized character will be accepted as evidence of preparation, in place of an examination.

Graduates of colleges conferring degrees are presumed to have the necessary qualifications for entering the third-year class in any of the regular courses of the Institute, and will be so admitted provisionally, on the presentation of their diplomas.

The feature of instruction which has been most largely developed in the school is laboratory training shop-work and field practice, to supplement, to illustrate, and to emphasize the instruction of the recitation and lecture room.

Surveying instruments are provided for field work in civil and topographical engineering. Extensive shops have been fitted up for the use of both hand and machine tools; and a laboratory of steam engineering has been established as a part of the instruction in mechanical engineering. Several steam boilers and steam engines of various types are available for experiments and tests. The department of mining engineering and metallurgy has the use of laboratories in which the milling and smelting of lead, copper, silver, and other ores, in economic quantities, are regularly performed by the students themselves. The classes in architecture supplement the work of the drawing and designing rooms by the examination of structures completed or in course of erection, and by practical experiment in the laboratory of applied mechanics, testing the strength of materials and working out problems in construction. The Kidder Chemical Laboratories, just completed, contain desks for four hundred and twenty-six students, and afford the best modern facilities for the study of general, analytical, and organic chemistry. The Rogers Physical Laboratory has been greatly extended in every department during the past year, especially in respect to facilities for instruction and research in electrical science.

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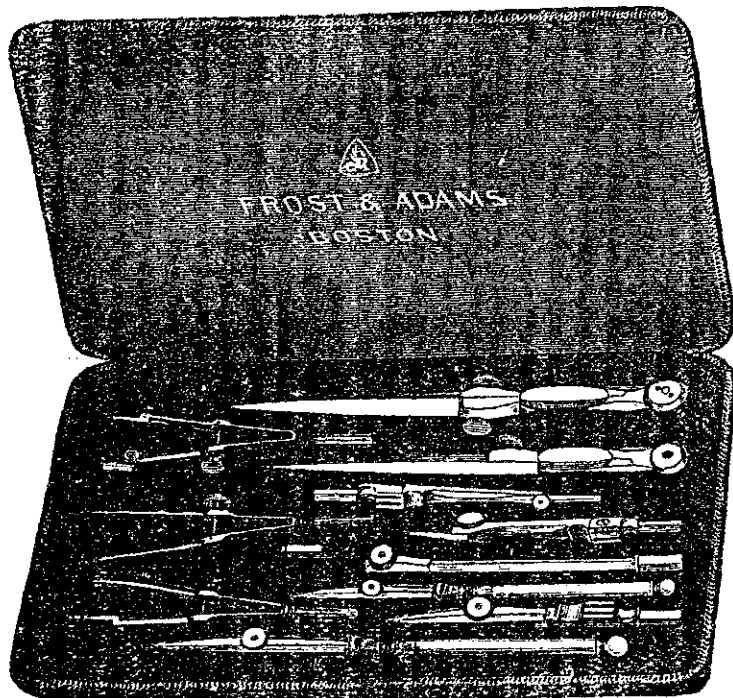
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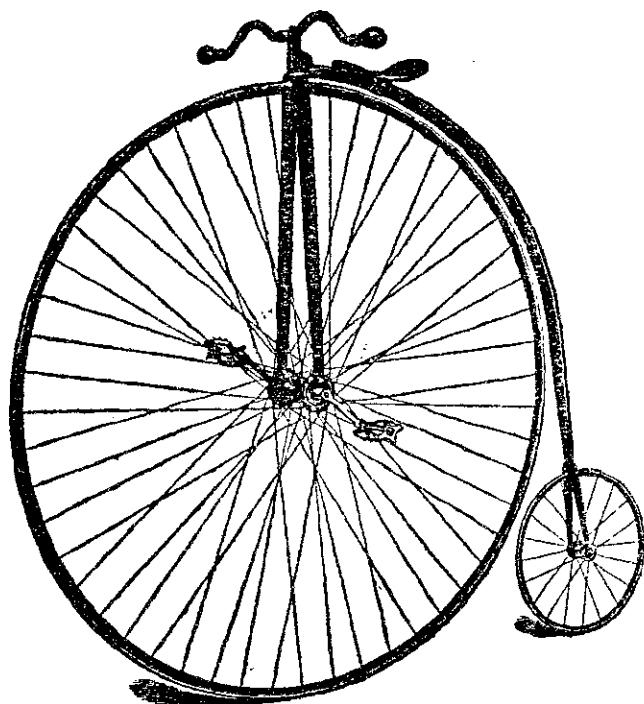
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